

(12)

EUROPEAN PATENT APPLICATION

(21) Application number: 88115096.5

(51) Int. Cl.⁴: G11B 33/04 , G11B 23/02

(22) Date of filing: 14.09.88

(30) Priority: 22.09.87 DK 4987/87
05.01.88 DK 19/88

(43) Date of publication of application:
29.03.89 Bulletin 89/13

(34) Designated Contracting States:
AT BE DE ES FR GB GR IT NL SE

(71) Applicant: ANTONSON SECURITY DENMARK
A/S
15, Metalgangen
DK-2690 Karlslunde(DK)

(72) Inventor: Nielsen, Frede
11, Roskildevej, Tune
DK-4000 Roskilde(DK)

(73) Representative: Wehnert, Werner et al.
Patentanwälte Dipl.-Ing. Hauck, Dipl.-Phys.
Schmitz, Dipl.-Ing. Graalfs, Dipl.-Ing.
Wehnert, Dipl.-Phys. Carstens, Dr.-Ing.
Döring Mozartstrasse 23
D-8000 München 2(DE)

(54) Safety box for valuable articles, such as compact discs, records or tapes, as well as a bar means for such a box.

(57) A safety box (10) for sorting, displaying and selling valuable articles, such as compact discs, records or tapes, in self-service stores with electronic theft detection systems. The safety box is lockable by a bar means (20) and rendered so sturdy that it is practically impossible to remove the desired article from the box without a special device unlocking the bar means, preferably the same type of device used for security tags belonging to the electronic theft detection system. Such a device is normally positioned at the cashdesk of the store. The front side wall of the box can be partially open and comprises a border (12a) and two reinforced corner areas (12b, 12c). The back side wall of the box can also be open and comprises preferably a border (14a) and reinforced corner areas (14b, 14c, 14d, 14e). Thus a customer can clearly see the content of the box. The corner areas (12b, 12c) of the front side wall have their counterparts in missing corner areas in the back side wall (14). Thus the box is suitable for stacking. The bar means (20) is locked between the borders (12a, 14a) when the article is placed inside the box, and is opened by the special device when a customer has paid for the article.

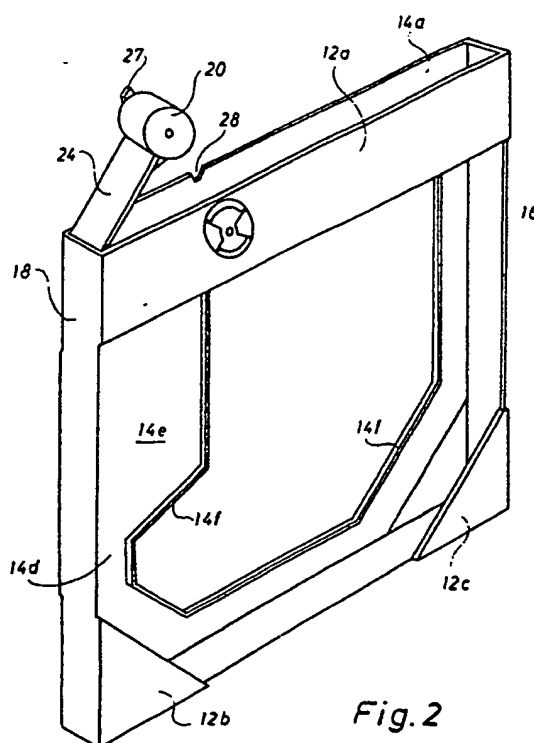


Fig. 2

Safety box for valuable articles, such as compact discs, records or tapes, as well as a bar means for such a box.

The present invention relates to a safety box in form of a partially closed box for storing and displaying an article on sale, said safety box being provided with a bar means only to be opened with a tool especially adapted to said bar means.

In department stores, supermarkets and similar self-service stores the articles on sale are usually secured against theft by using an electronic theft detection system. When using such a system the individual article is provided with a special security tag, also referred to as marker, to be detected by the electronic theft detection system surveying all exits of the store in question.

Especially attractive types of articles, such as compact discs, records, tapes, watches and jewellery, pose a special problem, as they are of a value rendering the possession of such an article highly attractive. At the same time it is easy to clandestinely transfer them to a pocket or bag due to their comparatively small size. It is therefore customary to only display, for instance, an empty casing showing the attractive article. When a customer has made his or her choice, the shop assistant will fetch the chosen article from a locked storeroom. This method is suitable as long as the number of special articles is restricted. It becomes cumbersome and cost-intensive, as the number of articles on sale exceeds for instance 30,000, 60,000 or 90,000, as is increasingly the case for such attractive articles.

A safety box of the type mentioned above is known, said box being provided with a locking means fitting into corresponding, small slots on one side of the box.

The object of the present invention is to provide a safety box, which is inexpensive to manufacture, easy to stack, strong and sufficiently difficult to break open to prevent theft on impuls, said box being at the same time suitable for displaying the article in question. At the same time it is easy to open for authorized personnel.

The object of the invention is accomplished by one of the narrow side walls of the box being at least partially open and replaced by a lockable bar means situated between two large, plane-parallel side walls of the box, where the length of the bar means is substantially equal to the distance between the two large plane-parallel side walls, said bar means being positioned at such a distance from the corners of the box that the remaining open passage does not allow the removal of the article inside the safety box.

As a result the lockable bar means is posi-

tioned between the two abutting side walls and forms an effective obstacle in the passage along the otherwise open side wall. The inventive safety box is especially suitable for storing and displaying compact discs. Preferably the box is of such dimensions that it can store a predetermined number, preferably only one, of compact discs in surrounding protective casings or envelopes. Since a compact disc is usually delivered in a protective plastic casing, said plastic casing being inserted into the safety box together with the compact disc. The size of the safety box as well as the position of the lockable bar means are, of course, adapted to the dimensions of the plastic casing containing the compact disc.

Such a safety box is simple to manufacture and easy to use, as the article is only pushed into the box through the open, narrow side, which is subsequently locked by the removable bar means.

Preferably the safety box is manufactured of transparent plastic enabling a customer to see the displayed article. Each article on sale is inserted into its own safety box and placed on a shelf. A customer chooses a desired article, puts it into a shopping basket or trolley and goes to the cash-desk. Here the article is paid for, and the shop assistant removes the safety box by means of a device co-operating with the locking means in question. The empty safety boxes are collected and used again for displaying further articles.

Apart from the locking means preventing the customer from obtaining direct access to the article, the safety box is preferably provided with an electrically conducting means detectable by an electronic theft detection system.

The lockable bar means preferably comprises a well-known locking means described in EP-PS 0.142.748 and mounted in a cylinder fastened to a flexible strip or toggle arm in turn mounted on an abutting side wall of the box, and one of the large side walls is provided with an indentation including an opening for receiving a locking pin projecting into the locking means in the cylinder, and the indentation is at least partially surrounded by a bead. The safety box with a locking means described in EP-PS 142.748 is especially advantageous in shops equipped with a surveillance system using security tags for this type of locking means. The inventive lockable bar means is easy to handle by the shop personnel since they are acquainted with the locking means with security tags used by the electronic theft detection system. Further this arrangement ensures that the locking means is not directly accessible and cannot di-

rectly be exposed to tools.

A further characteristic of the present invention is the toggle arm which is fastened in a pocket of the abutting side wall. The flexible arm or strip fastened in a pocket of the abutting side wall of the box ensures that the bar means remains attached to the box after having been unlocked when a customer has paid for the article inside the safety box.

Preferably at least one of the large side walls of the box comprises a frame surrounding an open area, said frame including at least one border along the side provided with the lockable bar means, said frame further comprising a number of reinforcing corner areas.

This allows a clear view of the content of the safety box, although long and constant use can result in a considerable number of scratches on the surfaces of the box. Moreover, as little plastic material as possible is used for the manufacture. The dimensions of the borders, the reinforcing corner areas and the side walls are determined such that the force necessary for breaking up the box also destroys the article inside.

In an alternative embodiment of the invention at least one of the large side walls of the box comprises an open area, said the open area being surrounded by a substantially rectangular frame.

Preferably the frame comprises inwardly oblique corners so that the open area is octagonal.

In an especially preferred embodiment the box is provided with a loose lining, such as an inner cover for the article, the length of said lining in unfolded condition corresponding to twice the distance from the bottom of the box to the bar means plus the inner distance between the two large side walls of the box, and the width of said lining being substantially equal to the inner width of the box, said lining being positioned in such a way that it covers the open areas in the two large side walls of the box from the inside and closes the narrow open side wall provided with the bar means. Such a lining or inner cover provides the extra security otherwise obtained by completely closed side walls. When the material of the lining is transparent the article inside the box is clearly visible to a customer. The lining is furthermore less exposed to being scratched, as it is inside the box instead of being a surface of the safety box. The lining is preferably manufactured from a suitably strong, transparent, elastic plastic material. Optionally the lining is reusable as the rest of the box subsequent to the article being sold. It is, however, within the scope of the present invention to use an embodiment, where the lining is a cover following with the sold article.

The lining allows the safety box to be used when selling watches or jewellery, whereas it is

neither necessary nor suitable when selling recorded tapes provided with their own protective casing. The inventive safety box is suitable for displaying articles and protects said articles effectively against theft. It is furthermore inexpensive to manufacture and the amount of plastic used for the manufacture of one box is relatively small due to the large openings in the side walls. Such a box renders theft on impulse difficult and protects the article in the desired manner. The described loose lining enables the safety box to be used for a large number of various articles.

Furthermore the invention relates to a bar means for securing a box for storing and displaying an article, said bar means being characterised in that it comprises a cylinder with an inserted locking means, said cylinder being fastened to a flexible strip to be mounted on a side wall of the box. The inventive bar means is mounted in a safety box of the above type.

To prevent a person from removing the safety box from the premises so that he or she can open the box without being disturbed, the safety box is provided with a preferably embedded marking, such as an electrically conducting metal strip, to be detected by the electronic theft detection system installed in the shop.

The invention is described in greater detail below with reference to the accompanying drawings, in which

Figure 1 is a perspective view of a preferred embodiment of an inventive safety box with closed lock,

Figure 2 illustrates the box of Figure 1 with open lock,

Figure 3 is a rear view of the box of Figure 1,

Figure 4 is a side view of a stack of inventive boxes,

Figure 5 shows a detail of the inventive box,

Figure 6 is a perspective view of the corresponding bar means,

Figure 7 is a front view of a corner of the safety box, shown without the lockable bar means,

Figure 8 is a sectional view along the line A-A through the corner of Figure 7,

Figure 9 is a sectional view along the line B-B through the corner of Figure 7,

Figure 10 is a perspective view of a detail of the corner of Figures 7 and 8,

Figure 11 illustrates an alternative embodiment of the inventive safety box,

Figure 12 illustrates a third embodiment of the inventive safety box,

Figure 13 illustrates a detail of the back of the safety box of Figure 12,

Figure 14 illustrates a detail of the top of the safety box of Figure 12.

Figure 15 shows an embodiment of the inventive safety box in open and separated condition, and

Figure 16 shows the embodiment of Figure 15 in closed condition.

Figures 1-10 illustrate a preferred embodiment of an inventive safety box 10. The box 10 has a square or rectangular front side wall 12 best visible in Figures 1 and 2, and a square or rectangular back side wall 14 best visible in Figure 3. The front side wall 12 and the back side wall 14 are joined by three narrow side walls 16, 17, 18. The fourth side wall is at least partially open, preferably completely open as shown. In the embodiment shown the fourth side wall is only barred by a lockable bar means 20. The bar means 20 is cylindrical and comprises a locking means of the type described in EP-PS 142.748. Such a bar means is locked by inserting a locking pin 121 from the front side. The pin 121 can only be removed by means of a special arrangement of a set of magnets. Such arrangements are found in all shops using an electronic theft detection system with security tags as disclosed in EP-PS 142.748.

The front side wall 12 comprises a border 12a and reinforcing corner areas 12b, 12c. The back side wall 14 comprises a corresponding border 14a and reinforcing surfaces/plates 14b, 14c and 14d. The material used is preferably transparent plastics. The strength, thickness and corner dimensions are apparent from the drawings, where the safety box is shown in its original size. The dimensions are chosen such that the box is rendered tamper-resistant. The box is difficult to crush and to separate. The article inside the box can thus not be removed. Preferably the back side wall 14 also comprises an area 14e to be used for attaching a text. The text is either directly imprinted onto the plastic material or printed on a label to be exchanged when necessary. All surfaces of the preferred embodiment are provided with extra surfaces 14f, 12f perpendicular to the aforementioned surfaces for reinforcing the edges.

Preferably only so much plastic material is used for the front and back side walls of the box that sufficient strength is ensured for effectively preventing access to the inserted article. In this case sufficient strength means that the safety box is so strong that the force necessary for breaking up the box involves a considerable risk of destroying the inserted article. Thus it is no longer tempting to break up the box.

By only using the amount of material necessary for obtaining sufficient strength the expenses for the material are considerably reduced. At the same time large parts of the side walls are advantageously open so that the displayed article is

clearly visible to a customer. After being used for some time a safety box of the type described is often scratched, whereby the material becomes opaque although it has been transparent in the beginning.

The bar means 20 comprises a hollow cylinder 22 fastened to a flexible strip or arm 24, made for instance of polyvinyl. The strip or arm is fastened to a pocket 51 in the side wall 18 of the safety box, cf. Figure 5. A locking means is inserted into the cylinder, said locking means being of the type disclosed in EP-PS 142.748. It is within the scope of the invention to insert a different type of locking means. The bar means 20 co-operates with a corresponding annular indentation 21 in one of the borders 12a, 14a.

The annular indentation 21 in the front border 12a partially retains a locking pin 121 of the type used with the preferred lock, cf. Figure 6. To facilitate the removal of the pin by the shop assistant the indentation is furthermore provided with two grooves or openings 31, 32 opposite each other. The grooves are adapted for insertion of two finger nails, cf. Figure 7, since the locking pin 121 is typically removed by means of the right-hand thumb and index finger. Between the two grooves and along the periphery of the indentation two beads 33, 34 are arranged to reinforce said area and particularly to prevent removal of the locking pin by means of unauthorized tools, such as a pair of pliers.

One of the beads 33 is preferably positioned at the top narrow edge. The inner surfaces of the borders 12a, 14a are substantially smooth. The back surface of the border 14a is also provided with an annular indentation 30 advantageously allowing the stacking of the boxes. The part of the locking pin 121 protruding from the front side 12a can project into the indentation 30 of the next stacked box, cf. Figure 4.

The front side of the box is provided with triangular corners 12b, 12c. The back side of the box is correspondingly provided with triangular openings limited by oblique edges 14g to facilitate the stacking of the boxes.

The safety box is furthermore provided with an embedded, electrically conducting metal strip (not shown) to be detected by the electronic theft detection system.

The following is a short description of the functioning of the safety box. When the box is open the bar means 20 can be tilted backwards but is still attached to the box due to the flexible strip 24. When the bar means is tilted a tape, a compact disc or another article can easily be inserted into the box through the open side wall. Then the bar means 20 is tilted down so that the cylinder-shaped locking means 22 is aligned with the cor-

responding indentations 21, 30 in the borders 12a, 14a. A thumbtack-shaped locking pin 121 is side-wise inserted into the locking means, whereupon the locking pin cannot be removed without the aid of a special device, for instance in form of a suitable set of magnets belonging to the electronic theft detection system. The bar means 20 is thus locked to the borders 12a, 14a. The article is now locked inside the safety box and can then be displayed so that a customer can choose the article(s) he or she wishes to buy and put the safety box with the desired article in a shopping basket or trolley.

When a person attempts to hide the safety box and to remove it from the premises the electronic theft detection system detects the electrically conductive metal strip embedded in the safety box and emits an alarm, when the person hiding the safety box passes the gate of the electronic theft detection system at the exits of the shop. This procedure is well-known in shops equipped with electronic theft detection systems.

When the person instead attempts to open the safety box to get rid of it before the exit, the box turns out to be so strong that it seems impossible to remove the inserted article undamaged from the box. Consequently the person soon gives up the attempt and leaves an unopened safety box or, in the worst case, a damaged safety box with a damaged article.

The locking means is protected inside the cylinder and cannot be forced open by any tools. The locking pin 121 is inside the locking means and its head is countersunk in the indentation 21 on the border 12a. Thus shoplifting of articles is prevented as much as possible. A shop assistant is able to quickly open the safety box for an ordinary customer taking the articles to the cashdesk by placing the bar means into the device provided for this purpose. It is, however, within the scope of the present invention to use a locking means other than the one described in EP-PS 142.748.

Figure 6 illustrates a preferred bar means for mounting in a safety box. Such a bar means comprises a cylinder 22 with a flexible strip or arm 24 attachable to a box having one open side wall. The cylinder 22 comprises preferably a locking means of the type disclosed in EP-PS 142.748.

Figures 7-10 illustrate in greater detail the area adjacent the locking means. Figure 7 shows an enlarged section of the border 12a with an indentation 21, the grooves 31, 32 and the beads 33, 34. Figure 8 is a sectional view along the line A-A of Figure 7, and Figure 9 is a sectional view along the line B-B of Figure 7. In the rear the pocket 51 for receiving and retaining a strip 25 is visible. Figure 10 is a perspective view of a detail of Figure 7 and shows the form of the indentation 21 with beads

33, 34.

The back border 14a is preferably provided with a notch 28 co-operating with a projection 27 on the bar means to ensure the correct position of the locking cylinder 22 when the bar means is mounted, cf. Figure 2.

The side walls are provided with shearings 40 to facilitate the stacking of the described safety boxes. The triangular front corners 12b, 12c co-operate with the edges 14g and the corresponding triangular openings on the back side wall which facilitates the stacking.

Figure 11 illustrates an especially simple embodiment of the inventive safety box. The box is of rectangular parallelepiped shape and provided with two large plane-parallel surfaces, a front side wall 12, and a back side wall 14, as well as with three narrow side walls 16, 17 and 18. The box is preferably made of transparent plastics. The top of the box is open, but provided with a bar means of the type described above. The box is easy to use and provides an effective protection against unauthorized removal of an article therefrom.

The bar means comprises a cylinder 22 including a locking means, for instance the locking means disclosed in EP-PS 142.748. When the cylinder is tilted down into the open passage between the side walls 12 and 14 so that a hole 35 in the side wall 12 is aligned with a hole 35' in the cylinder 22, a thumbtack-shaped locking pin 121 is inserted. The locking pin 121 is retained by the locking means, whereby the passage is blocked and remains so until the locking pin 121 is removed by means of a device arranged for the removal of such locking pins.

Figure 12 shows a preferred embodiment with two large openings in the large side walls 12, 14. The large openings provide a customer with an improved view of the article inside the safety box although the box may be considerably scratched after having been in use for some time. The large openings also result in a considerable saving of the plastic material used for the manufacture of the safety box. As is apparent from Figure 12 the side walls 12, 14 preferably comprise only two frames, the inside of which is octagonal, as the corners are oblique. The inwardly oblique corners result in a greater strength of the box, compared to the strength of a box having 90° corners.

The bottom edge of the opening in the front side wall 12 of the safety box is provided with a protruding edge 50 co-operating with the bottom edge of the open area on the back side wall 14 of another safety box, cf. Figure 12. Thus also this embodiment is easily stacked.

The projecting beads 33, 34 of the bar means 20 are similarly received in a hole or an indentation 30 on the back side wall 14.

This embodiment of the safety box is especially suitable for tapes and the like which are already protected by a rigid casing. This casing with the tape can be removed through the open passage between the large side walls.

Figure 14 illustrates how the safety box is provided with a projecting web 65 with an aperture so that the box can be hung on a skewer.

Figures 15 and 16 show an especially preferred embodiment, where the described open safety box is combined with a lining or inner cover 60. When unfolded the lining or inner cover is a substantially rectangular sheet of a length substantially corresponding to twice the distance from the bottom 17 of the box to the bar means plus the inner distance between the two large side walls of the box. The width of the lining or inner cover corresponds substantially to the inner width of the box. The lining or inner cover is folded in form of a U round the article 62 to be protected and is inserted together with the article inside the safety box 10. Then the box is locked by tilting the bar means 20 into the passage between the side walls 12, 14 and inserting the locking pin 121 into the hole 35. Thus the safety box is usable for various articles, such as jewellery, cf. Figures 15 and 16.

The lining or cover is, of course, made of a suitably strong material difficult to press or to tear to pieces. Strong, transparent plastics is preferred.

When the article is paid for a shop assistant opens the bar means with a device for this purpose, and the two open areas facilitate the removal of the lining or cover and the article from the safety box. The lining or cover can thereafter follow with the article, whereas the safety box is reused in the shop.

While the article is on display the lining or inner cover 60 co-operates with the rigid side edges of the safety box and side walls so that it is impossible to push the preferably smooth and slippery lining or inner cover aside and to obtain access to the desired article round and behind the lining or cover. The oblique corners further render it more difficult to reach the corners of the lining or cover. It is thus practically impossible to pull the lining or cover out of the opening.

The box can be provided with an electrically conducting strip (not shown) to be detected by an electronic theft detection system.

This embodiment of the inventive safety box is thus also inexpensive in manufacture, easy to use and provides a secure protection for all kinds of articles.

Claims

1. A safety box (10) in form of a partially closed box for storing and displaying an article on sale, said safety box being provided with a bar means (20) only to be opened with a tool especially adapted to said bar means, characterised in that one of the narrow side walls of the box is at least partially open and replaced by a lockable bar means (20) situated between two large, plane-parallel side walls (12, 14) of the box, where the length of the bar means (20) is substantially equal to the distance between the two large plane-parallel side walls (12, 14), said bar means being positioned at such a distance from the corners of the box that the remaining open passage does not allow removal of the article inside the safety box.

2. A safety box as claimed in claim 1, characterised in that the bar means (20) comprises a well-known locking means described in EP-PS 0.142.748 and mounted in a cylinder (22) fastened to a flexible strip or toggle arm (24) in turn mounted on an abutting side wall (18) of the box, and that one of the large side walls is provided with an indentation (21) including an opening for receiving a locking pin (121) projecting into the locking means in the cylinder (22), and that the indentation is at least partially surrounded by a bead (33).

3. A safety box as claimed in claim 2, characterised in that the toggle arm (24) is fastened in a pocket of the abutting side wall (18).

4. A safety box as claimed in claim 1, characterised in that at least one of the large side walls (12, 14) of the box comprises a frame (12a, 12b, 12c, 14a, 14e, 14f) surrounding an open area, said frame including at least one border (12a, 14a) along the side provided with the lockable bar means (20).

5. A safety box as claimed in claim 4, characterised in that said frame further comprises a number of reinforcing corner areas (12b, 12c).

6. A safety box as claimed in claim 4 or 5, characterised in that at least one of the large side walls (12, 14) comprises an extended border area (14e) for optionally attaching a text.

7. A bar means for securing a box for storing and displaying an article, characterised in that it comprises a cylinder (22) with an inserted locking means, said cylinder being fastened to a flexible strip (24, 25) to be mounted on a side wall (18) of the box.

8. A safety box as claimed in claim 1, characterised in that at least one of the large side walls of the box (12, 14) comprises an open area, and that the open area is surrounded by a substantially rectangular frame (Figure 12).

9. A safety box as claimed in claim 8, characterised in that the frame comprises inwardly oblique corners so that the open area is octagonal (Figure 12).

10. A safety box as claimed in claim 1, characterised in that the box is provided with a loose lining (60), such as an inner cover for the article, the length of said lining in unfolded condition corresponding to twice the distance from the bottom (17) of the box to the bar means (20) plus the inner distance between the two large side walls of the box, and the width of said lining being substantially equal to the inner width of the box, said lining being positioned in such a way that it covers the open areas in the two large side walls (12, 14) of the box from the inside and closes the narrow open side wall provided with the bar means (20) (Figure 15-16).>

20

25

30

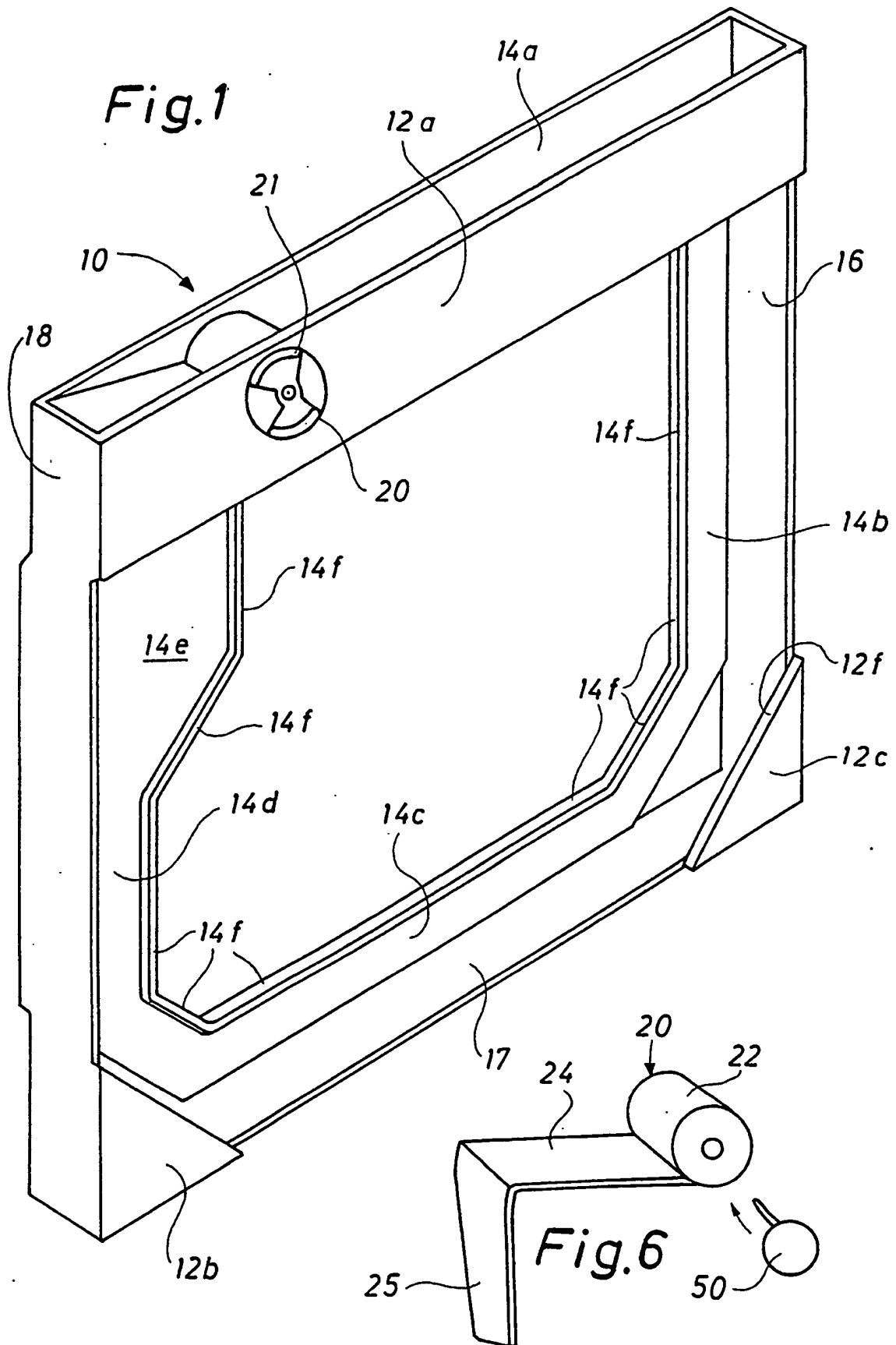
35

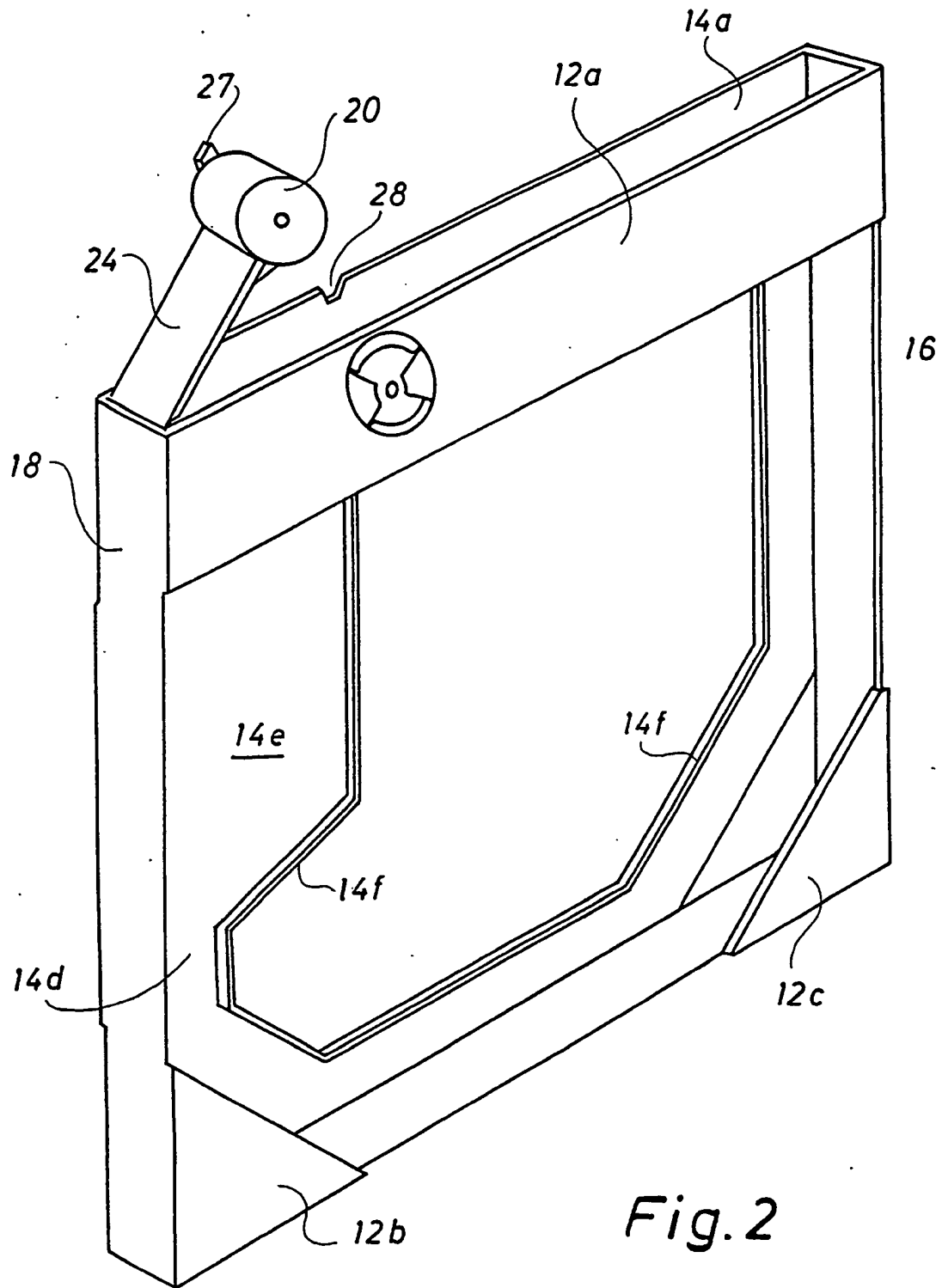
40

45

50

55





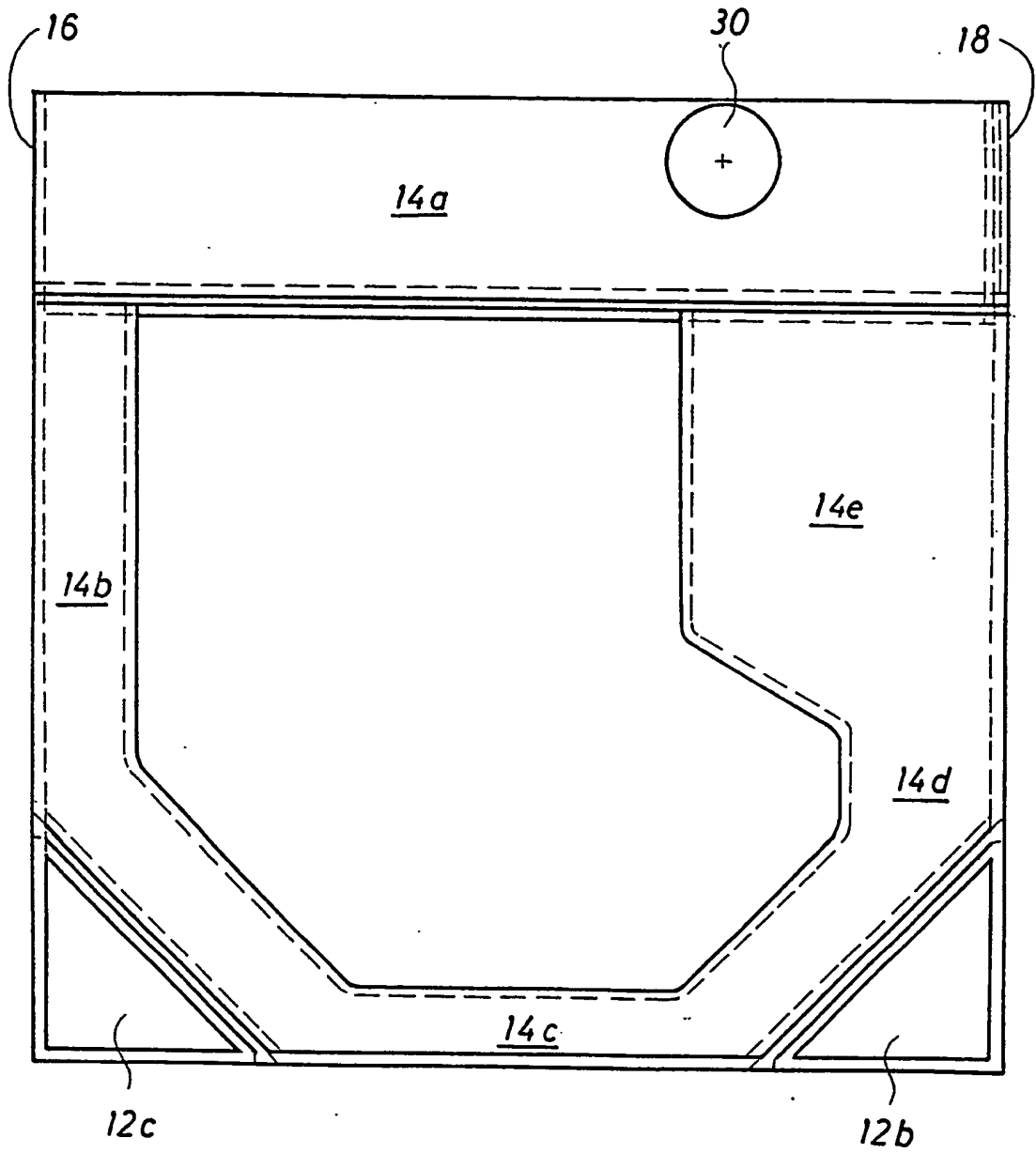


Fig. 3

Fig.4

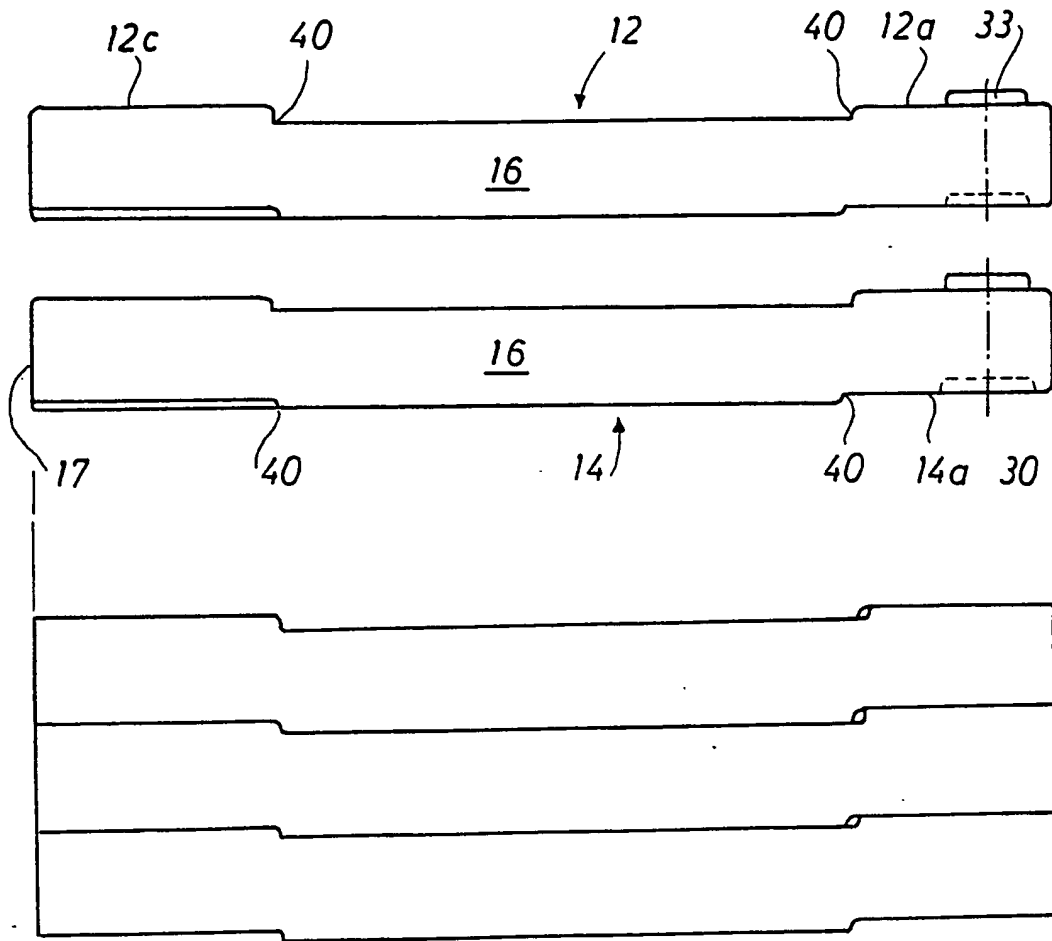


Fig.5

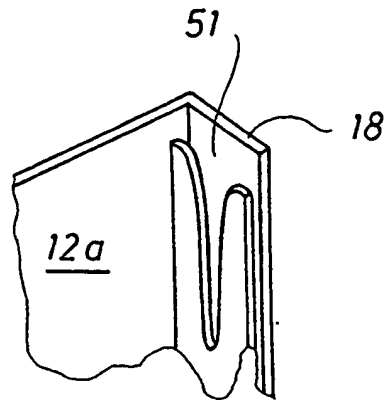


Fig.7

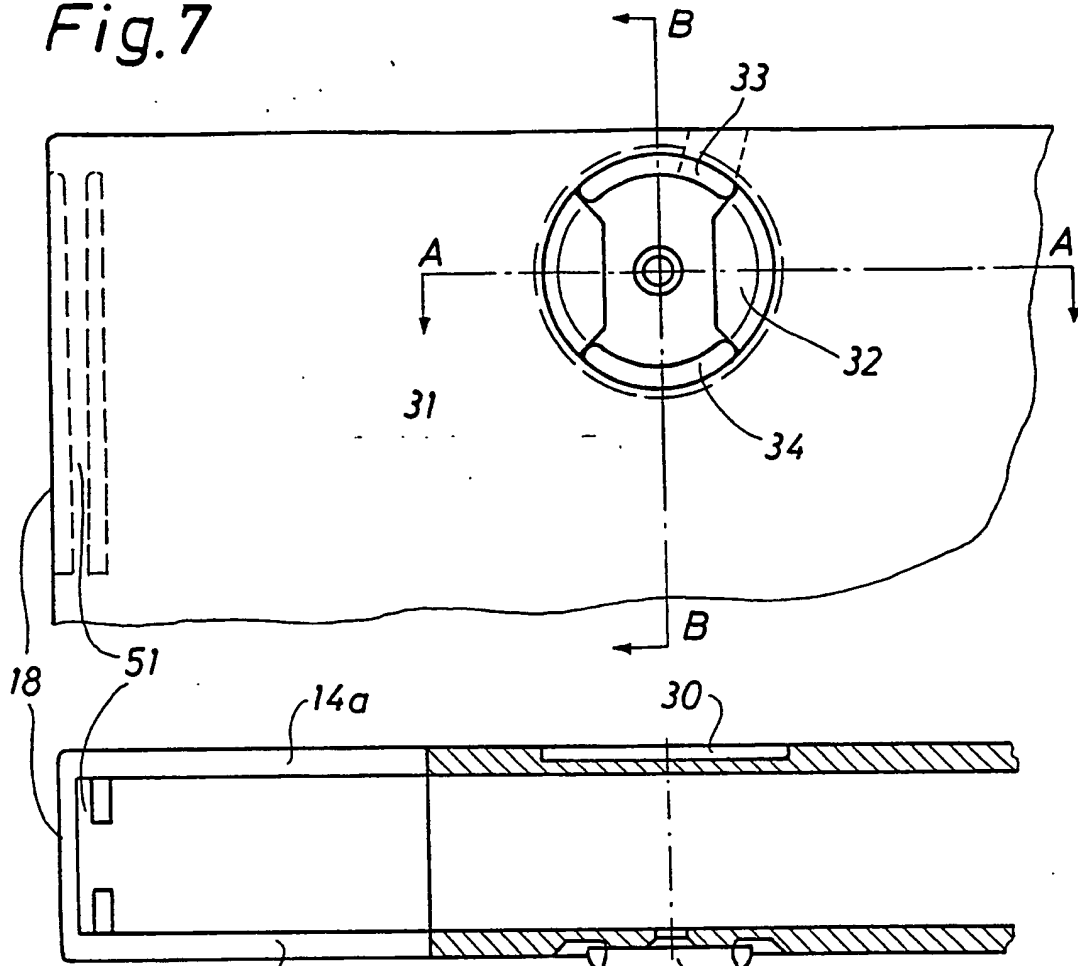


Fig.8

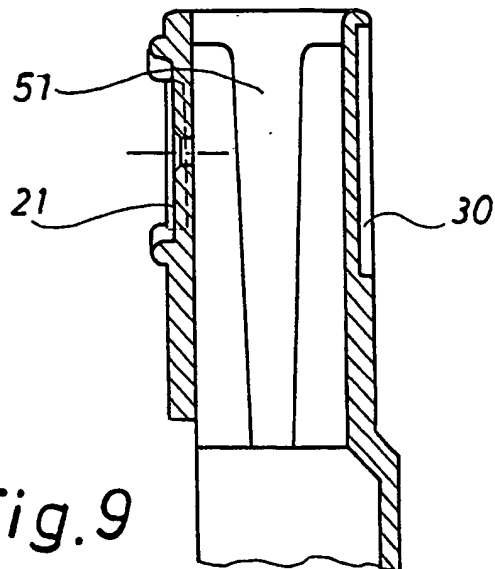


Fig.9

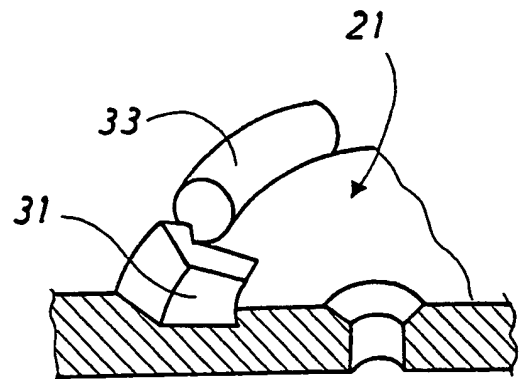


Fig.10

Fig. 11

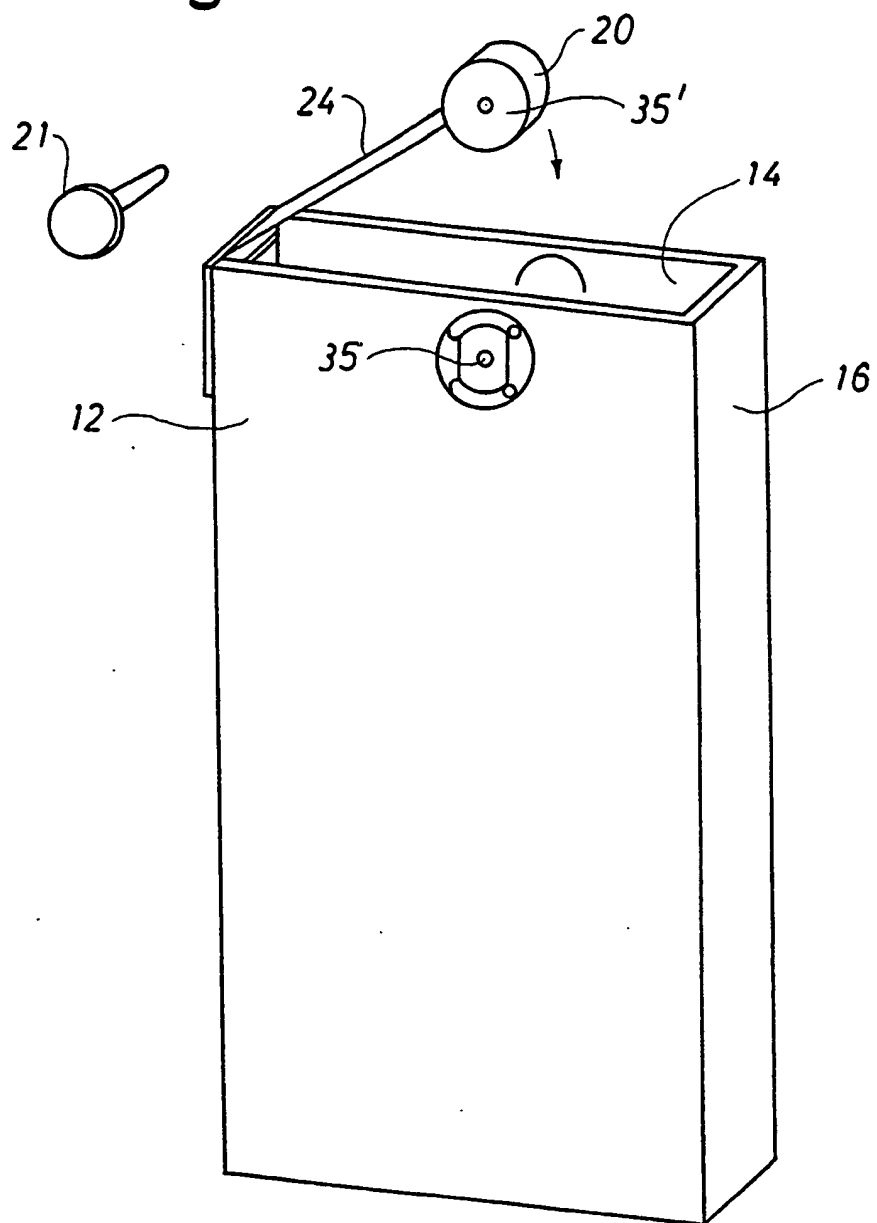
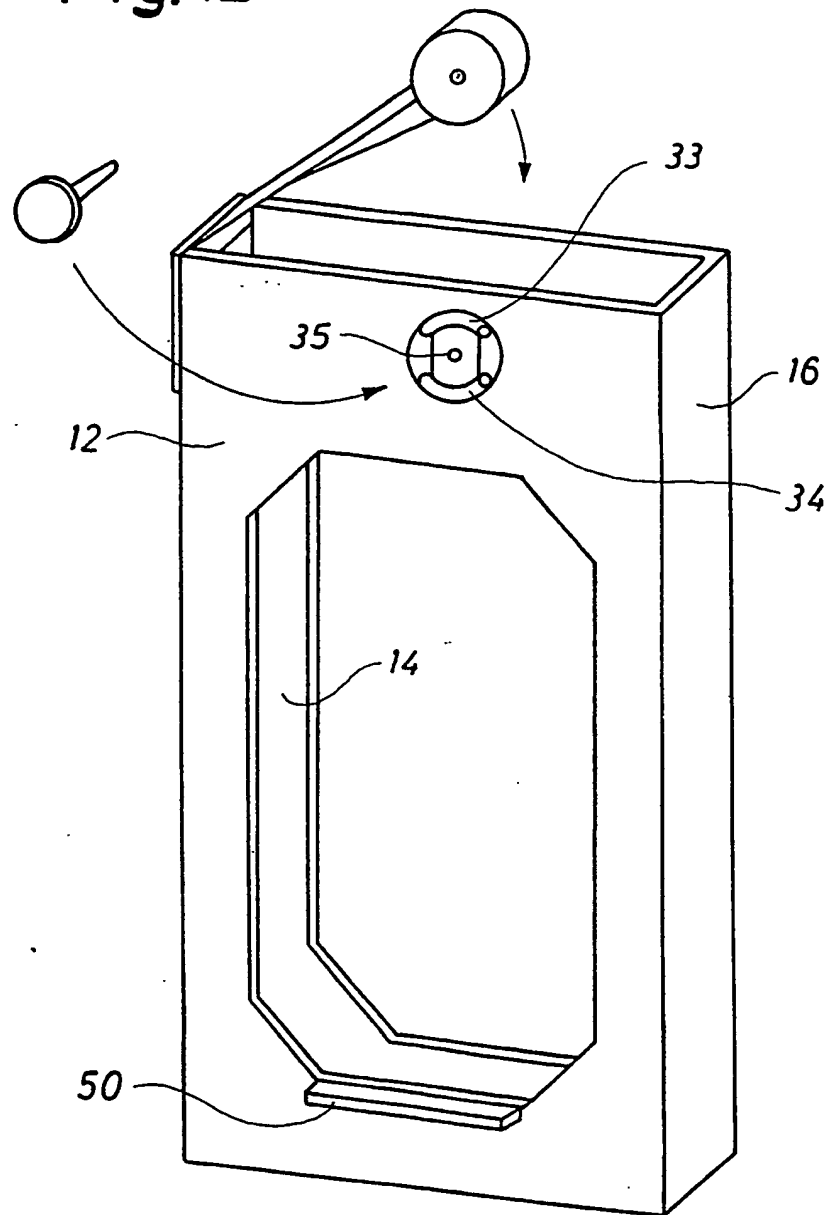


Fig. 12



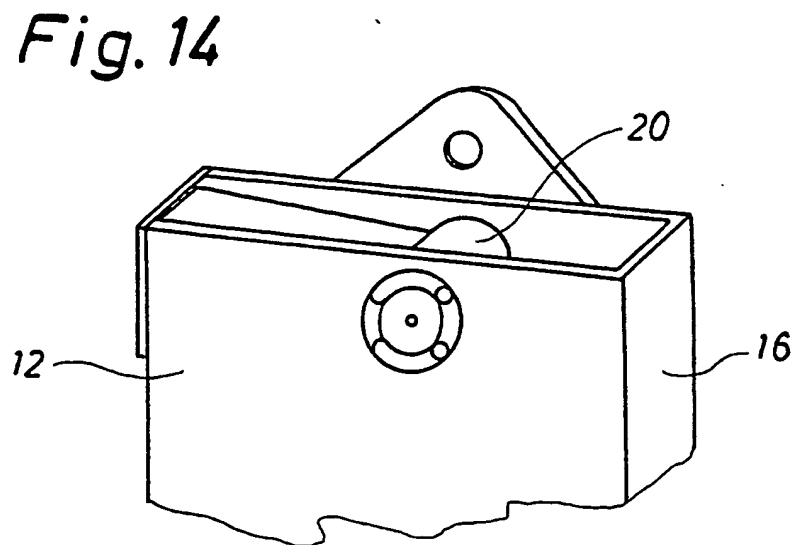
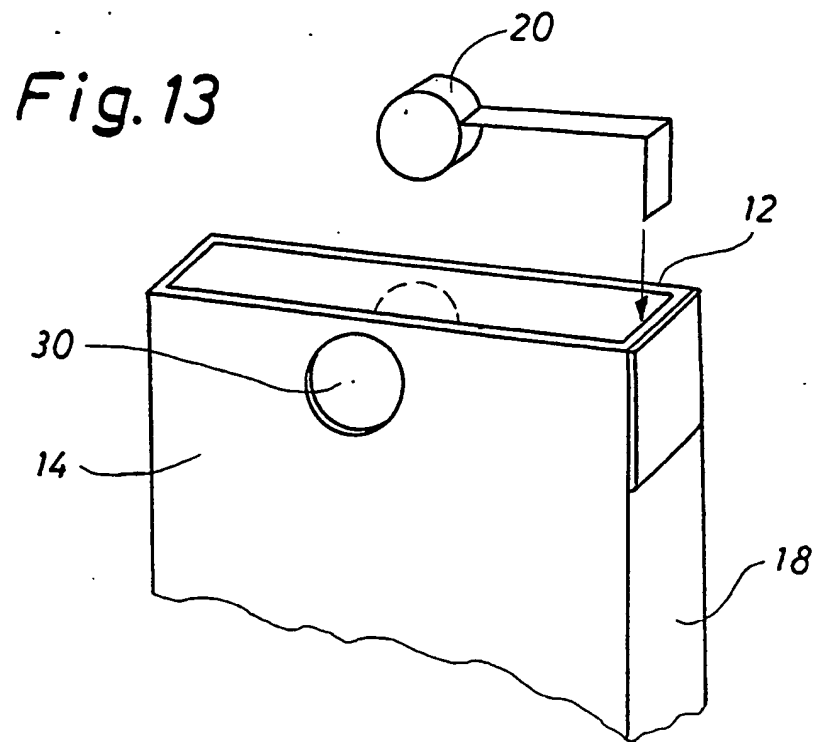


Fig. 15

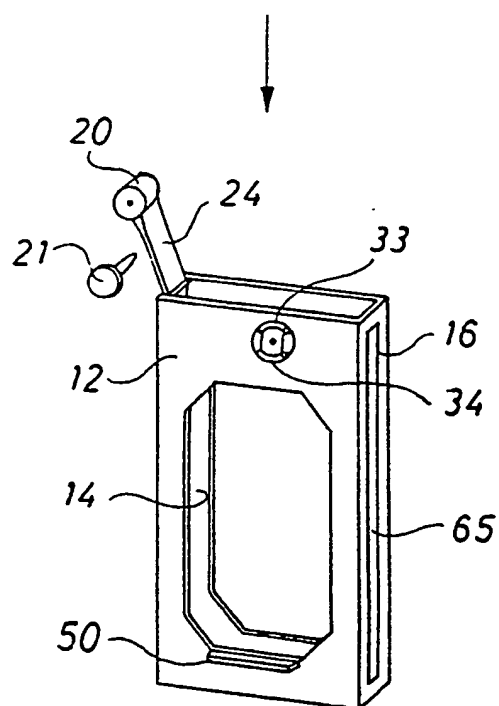
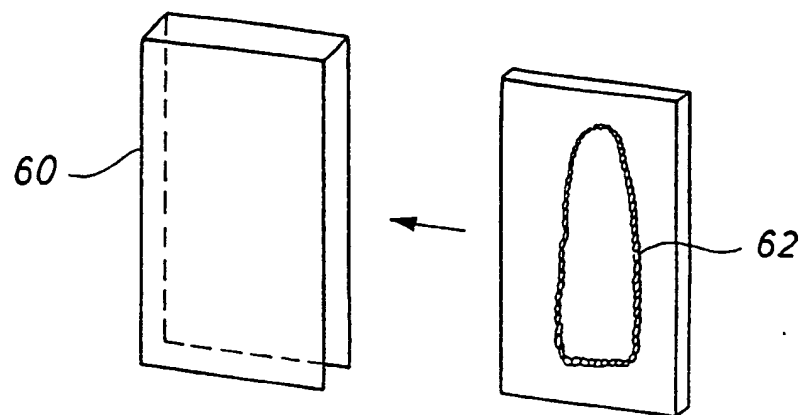


Fig. 16

